

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

19422

D33C4122

WAR FOOD ADMINISTRATION
OFFICE OF MARKETING SERVICES

METHODS EMPLOYED
IN THE LABORATORY ANALYSIS
OF BULK (NATURAL) AND PROCESS CHEESE
BY THE
DAIRY AND POULTRY BRANCH

Laboratory Located at
Room 1612 - Mallers Building
5 S. Wabash Avenue, Chicago, Illinois

Issued May 31, 1945

AUG 3 1945

5952(3)

1917

1917

1917

THE CHEMICAL ANALYSES OF BULK (NATURAL) AND PROCESS CHEESE

Preparation of Bulk Cheese Samples for Analysis

Samples which show considerable oiling off with obvious fat leakage are not analyzed. If necessary, cheese samples are kept under refrigeration to harden the plugs before grinding. The sample is prepared by mixing the cheese plugs in a "food grinder" four times. After grinding, the prepared sample is kept in a closed container under refrigeration until all tests are completed. This sample represents a carlot of bulk cheese.

Duplicate moisture determinations are made on all bulk cheese samples.

Preparation of Process Cheese Samples for Analysis

Two composites per carlot are prepared by combining sub-lots ABC for one, and DEF for the other.

In order to clean the grinder, one plug from each of the sub-lots making up a composite is first put through the grinder and then discarded. For the sample to be analyzed, two plugs from each sub-lot are combined, mixed once through a "hand food grinder", then with a mortar and pestle. The sample is then transferred, packed tightly into a closed container and held under refrigeration until used for analysis. The remainder of the samples of the sub-lots are left in the original jar or package and held under refrigeration to be used if rechecking is required.

Duplicate tests for process cheese are ordinarily not necessary inasmuch as each carload consists of two composite samples.

Moisture Determination of Either Bulk Cheese or Process Cheese-Overnight-Method

With an analytical balance weigh approximately 2 grams well mixed cheese sample prepared as above in a tared covered aluminum dish ⁽¹⁾ which had been previously dried at 100 to 103° C and cooled in a desiccator. Loosen cover and transfer dish to a thermostatically controlled oven at 100 to 103° C.* At the end of approximately 16 hours, transfer the dish to a vacuum oven for 1 hour at 100° C with 20" or more vacuum. Cool in a desiccator to room temperature and weigh; calculate as percentage moisture of sample.

Moisture Determination of Either Bulk Cheese or Process Cheese-Vacuum-Oven Method

*With the alternative short-time method the well mixed sample is allowed to remain in the thermostatically controlled oven for 1 hour to drive off excess moisture and then transferred to a vacuum-oven for 4 hours at 100° C with 20" or more vacuum. Cool in a desiccator to room temperature, weigh and report as percentage moisture of the sample.

(1) Size of dish is approximately 2" in diameter, 7/8" in depth.

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED

100

1. The applicant was born on 10/10/1941 in the city of
2. The applicant was born in the city of [redacted]
3. The applicant was born in the city of [redacted]
4. The applicant was born in the city of [redacted]
5. The applicant was born in the city of [redacted]
6. The applicant was born in the city of [redacted]
7. The applicant was born in the city of [redacted]
8. The applicant was born in the city of [redacted]
9. The applicant was born in the city of [redacted]
10. The applicant was born in the city of [redacted]

Transfer into a Mojonnier flask approximately 1 gram of the prepared sample; add 5 ml. of distilled water and 7 ml. of 28% ammonium hydroxide. Digest sample by placing flask in boiling water bath. After complete digestion (usually requiring 30 minutes and indicated by a fat layer and absence of cheese particles) remove the flask from the water bath and cool to room temperature.

Add 10 ml. of ethyl alcohol and mix thoroughly. Add 25 ml. of ethyl ether, stopper, shake vigorously for at least 30 times. Next add 25 ml. of petroleum ether, stopper, and again mix by vigorous shaking 30 times. With a hand centrifuge rotate the flask 60 times in a time period of 60 seconds. Decant the clear ether layer into a weighed aluminum fat dish (high side walls) and evaporate the ether slowly on a hot plate. The temperature should be sufficient to allow complete evaporation, but not so high that spattering or vigorous boiling will result.

Make a second extraction using 5 ml. of ethyl alcohol (instead of 10 ml. as for the original extraction) and the same quantities of each ether; mix well after the addition of each reagent. Centrifuge 60 times, decant the clear ether layer into the corresponding aluminum dish and evaporate slowly. If necessary, carefully pour a few ml. of distilled water down the side of the flask just prior to pouring off the second extraction to raise the level of the aqueous layer, so ethers may be completely poured off. It is important that none of the aqueous layer be allowed to run into the aluminum dish. After the ether is entirely evaporated from the aluminum dish on the "hot plate", place it in the Mojonnier oven for 5 minutes with the temperature at exactly 135° C and a vacuum of more than 20". Transfer and cool to constant weight in the cooling desiccator. In weighing the dishes, both when empty and when containing the extracted fat, they should be at room temperature. This usually requires cooling in the Mojonnier desiccator for 7 to 10 minutes. Report as percent fat.

10-10-1910

Dear Sir,
I have the honor to acknowledge the receipt of your letter of the 10th inst. in relation to the matter of the ...
I am sorry that I cannot give you a more definite answer at this time, but the matter is being considered by the proper authorities.
Very respectfully,
[Signature]

Very truly,
[Signature]

Very truly,
[Signature]